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WE commend to the attention of the members of the new American Institute of Architects the example of the French Société Centrale des Architectes, which annually awards to its members and others medals for particularly good work in various departments of professional practice. The medals are awarded at the annual Congress, but the names of those selected for the honor are announced some time previously. This year three "Grand Silver Medals" are to be presented for excellence in domestic architecture, one of which is to go to M. Fevrier, of Paris, the second, *ex æquo*, to M. Pellechet, also of Paris, while the third is awarded to M. Dainville, of Angers. For Jurisprudence, a silver medal has been assigned to M. Aldrophe, of Paris, and one in Archæology, to M. Fournereau, of Paris. Many other medals are presented to students, stone-carvers, decorators and so on, which we should hardly need to trouble ourselves with at present, but it would be easy to raise among us money enough for an annual silver, or even gold, medal, to be awarded for domestic architecture, which would be eagerly sought by the members of the new society, and would be a valuable possession for any of them. It would probably be best to restrict the prize to excellence in domestic architecture, for the reason that it would be easier to make a fair comparison of houses than of public buildings, in which the requirements, as well as the scale, the cost and other circumstances, vary so much that a proper comparison would be hardly possible. The award might perhaps be made in the Russian manner, by the members present at the Convention, each person marking, on some scale of points, all the designs, as shown by photographs and plans, except his own; and we will answer for it that the process of making the award would be one of the most interesting portions of the Convention's proceedings. As to the medal itself, which might be made a splendid affair, at a very small cost to the members of the society, there would be no doubt that it would be liberally shown by the happy recipient to his friends, rather to the advantage of the new Institute, which has few opportunities for making its existence known to the great body of mankind. Unlike many professional trophies, the Institute's medal would be a certificate of professional ability which would admit of no criticism or questioning, and as such would be the most precious possession of any one who owned it, while the fact that such a reward was to be gained would stimulate many an ambitious architect to exertions which there is now no inducement to make. Every one will agree that we need some way of encouraging architects to do their best in their work. The only persons whom they have to please at present are their clients, who are much more easily charmed by clever sketching than by solid study of plan and detail, if indeed, they do not expressly demand a bastard "colonial," or some other fashionable mannerism of design, to the exclusion of both originality and taste. Upon a jury of architects, on the contrary, the sort of claptrap which passes with clients for genius would be thrown away, and while those who aspired to the prize would help themselves greatly by the honest and well-directed efforts which they must make to win it, the award of the prizes, by showing the public the sort of work which the experts in the art considered best, would be a powerful influence in promoting a better and more intelligent taste in architecture than is now to be found. In the city of Brussels, as our readers know, the municipality itself gives every year a prize for the most beautiful house erected in the town during the year, and however the award may be made, we may be sure that the prize house is an object, not only of pride to its owner and architect, but of much curiosity to the citizens. It is probably too much to expect that any of our cities will, for a long time to come, offer prizes for anything so unpractical as a work of art of any sort, but the collective body of architects can offer it at once, and thus do something to hasten the arrival of the time when the appreciation of art shall be as familiar to the Americans as it was to the ancient Athenians. We must not forget that no people ever carried the principle and habit of competition so far as the Greeks, and we can hardly doubt that it was the most powerful element in their unrivalled intellectual development, if not in their physical superiority, and while we cannot hope to interest as many persons in our Olympic games as in those of the base-ball players and oarsmen, the annual struggle for the olive-crown would at least do us much good, and in time would attract the attention of many persons outside our ranks. This is by no means the first time that the matter has been spoken of, and more than one committee of the old Institute, if we are not mistaken, has urged the foundation of such prizes, but nothing has yet come of the recommendation, and we hope that the new body may take up the question with energy.

A CORRESPONDENT sends us some rudely lithographed circulars, which were distributed to architects by a school-committee in a Western city. The school-committee, in its first circular, invited architects to furnish in competition, within a space of about two weeks, "full working-drawings, details and specifications" for a "twelve-room school-house to cost not more than forty thousand dollars," and promised to pay one thousand dollars for the "plan adopted." A little information as to site was appended, but nearly everything else which an architect would need to know, in order to make plans intelligently, was left out. In consequence of this, apparently, the committee was beseiged with questions from intending competitors, and sent forth a second circular, containing answers to the more important questions, for the benefit of all the competitors alike. From the circular of answers it appeared that the committee did not really want full drawings and specifications, but that sketches might be sent in, and the successful plan might subsequently be "detailed and specified," it being understood that this should be done before the thousand dollars was paid. It further appeared that the committee had no idea what sort of heating and ventilating system, or drainage, it would adopt. It was considering the Smead and other systems, and when it determined what to select, the plans of the building could be modified to suit. There were several other items of instruction, but these were perhaps the most important, and our correspondent, with reason, invites our attention to the ignorant, unfair and ridiculous way in which the whole matter had been so far treated.

AS usual in such cases, while we fully sympathize with the disgust of architects who see a sum offered for plans for so important a public building as a twelve-room school-house, which would not pay for anything like the skill and thought required to design it properly, and who see, still further, the invitation issued in such a form as to impose, as it seems to them wantonly, an immense amount of labor on the conscientious men, which, as a second circular showed, would not have been required of the astute individuals who had the ear

of the committee, we are convinced that ignorance, not intentional malice or fraudulent purpose, was here to blame. That the committee really desired to act fairly by all the competitors is, to our mind, shown by its distribution of the second circular, containing its answers to the questions which had been asked, and the miserable failure of the whole affair in everything that makes a competition of any value seems to be due simply to the fact that the committee had no idea of what constitutes a modern school-house, or of what architects' work consists in, and that it was either too ignorant of these matters to know that it knew nothing about them, or too conceited to ask advice from any one who knew more than it did. In consequence of this, which is, we are compelled to say, the habitual condition of American school-committees, we will venture to predict, that after having inspired some of its fellow-citizens with the idea that it meditated a contemptible fraud, and put several others to useless trouble and expense, and exposed the public treasury to a considerable number of suits for damages, it will wind up its operations by bequeathing to the next generation another of those ill-planned, ill-ventilated, ugly, unwholesome and costly specimens of school architecture in which we condemn our children to lose their health, their eyesight, and often their modesty, to the amazement of foreigners, who cannot conceive of such a practice as leaving the destinies of the young to the hap-hazard direction which disgraces this country. To the just complaints which our children would make, if they had the necessary knowledge, against the nonchalant ignorance and carelessness to which the formation of their physical character is entrusted, we hope to give expression at some future time; but no champion ought to be needed to regulate the relation of architects with such committees. The poor, uncomplaining children must sit, day after day, in the stench of the rooms "ventilated" by one patent process, heated to roasting by another, or supplied with ice-cold currents around their feet by a third, compelled thereto by the fear of the truant-officer; but no truant-officer compels architects to enter competitions whose terms they do not like, and if they will only have the courage to say in advance, publicly and unanimously, what terms they will demand, they are sure to get them. In the rare instances where, as in this case, a committee publicly advertises one set of terms, and subsequently agrees, either privately or publicly, to different conditions, it is unquestionably liable for damages to all persons who have done any work in accordance with the stipulations which it first proposed, and if there are any architects in the town in question who made detail drawings and specifications for the school-house, in accordance with the first invitation, before the second circular was issued, they can probably collect, either from the town or from the individual members of the committee, a fair compensation for their wasted trouble. It is true that it would be likely to cost as much to collect the money as the amount of the verdict, but we must bear in mind that some time. in the autumn, we believe, now, we are to have a reorganized Institute of Architects, which looks forward to being able at some future time to take up such cases and push them to a verdict, in the interest of the profession, and without expense to the individual architects concerned.

THE project for a World's Fair in 1892, to celebrate the discovery of America by Columbus, is getting a good deal of discussion, partly from the fact that the New York papers think that it ought to be held in that city, instead of in Washington, as was first proposed. There are, of course, advantages in having such an affair held in the largest city in the country, but the experience of ten years ago, when abortive attempts were made to arrange for something of the same kind in New York, is not encouraging. Already, a dispute has been started over the question whether the Central Park shall be used to put the necessary buildings on, and the conflict of interests and prejudices, which proved fatal to the scheme of 1880, seems likely to make it impossible to arrange for holding the fair in New York, even if it were, on the whole, desirable to do so. Concerning the impropriety of ruining the Central Park merely for the sake of securing an inexpensive site for a six months' fair, there can hardly be two opinions among people outside of the city. There are many other available sites, the best, perhaps, being the Port Morris tract, which was generally conceded to be the best one proposed for the previous exhibition, and is said to be still available. This is accessible by sea or land, and has deep water at its edge, so that foreign products could be landed on the fair grounds from the ship in which they were imported. As every one seems to have a different suggestion to make, we will add ours, which is, that under the conditions which are expected to obtain in 1892, there might be a worse place for an affair of the kind than Staten Island. It has been several times proposed to extend the New Jersey Central Railway across the narrow "Kills" to the island, and all the other railways which terminate in Jersey City could use the same tracks to carry passengers across. As for passengers from the North and East, we must remember that the Hudson River tunnel is expected to be done by that time, and people who wanted to be transported directly to the fair grounds could be taken through it and over the bridge; while for passengers by water the shore of the island affords innumerable landing-places, so that a line of ferry-boats might start from the foot of every street in New York, on either river, and convey visitors to the exhibition grounds. As a site, independent of questions of accessibility, Staten Island could hardly be surpassed, and there would probably be an unlimited amount of unoccupied land available.

THE body of young Mr. Westell, whose accidental death by drowning we announced last week, has been recovered, and is to be taken to England under the care of his partner, Mr. Mellen, and of his friend Mr. Wills, who was with him at the time of his death, and narrowly escaped sharing his fate. Mr. Westell has a father, mother and sister in England. The New York papers led us astray by saying that he was an Associate R. I. B. A., and a holder of the Pugin Scholarship. We regret that we endorsed these statements since nothing would have been more repugnant to Mr. Westell than anything that looked like sailing under false colors. Short as his life here was, it was long enough for him to gain reputation and friends, and his family in England will have much sympathy from this side of the ocean in their great loss.

BOSTON enjoys the distinction of having been the only American city which has contributed any substantial sum to the work of the Egypt Exploration Fund, and it is to receive its reward in the shape of a remarkable collection of Egyptian antiquities and curiosities. It would be a suggestive question for lovers of such matters, to inquire whether the Way collection of Egyptian curiosities, which has been shown in the Boston Art Museum for several years, may not have served to excite an interest in the subject, which has shown itself in the support given to the more recent investigations, but, however that may be, Boston has sent about six thousand dollars to be spent in digging in Egypt, and is now reaping its reward. Among the objects more recently discovered, which are to be transmitted to Boston, is an enormous lotus-bud capital, from the hypostyle hall of the temple at Bubastis, in two pieces, each measuring twelve or fourteen feet in length, and five in thickness; the upper half of a colossal statue of a king, in red granite, which seems, from the accounts, to date from about 4000 B. C.; a huge capital, with a head of Hathor, measuring six feet in length, and several other pieces of sculpture. All these are to be kept in the Museum of Fine Arts, where they will, we hope, be studied as they deserve.

A RATHER exciting archæological discovery is reported from Hungary. About a hundred years ago, an immense treasure of silver and gold was dug up near the mountains of Transylvania, in the wildest and least-known part of Hungary. It is a matter of history that Attila, "the Scourge of God," after plundering nearly all Europe, and a large part of Asia, was buried, with a large amount of his precious booty, in some part of Hungary, but tradition relates that he desired to keep the place of his interment secret, and that the work was done by prisoners, who were all killed as soon as they returned from their task. However that may be, it seems certain that no place has ever been assigned as Attila's grave, and the discovery of the valuable objects constituting what is now called "Attila's Treasure," seems to have been the first clue to the discovery of a secret which had been kept successfully for nearly fourteen hundred years. A few weeks ago, some excavations in the same place brought to light a fresh collection of vases, dishes and other objects, nearly all of solid gold, and of the most beautiful antique workmanship, the whole being valued at about four hundred thousand dollars.

EQUESTRIAN MONUMENTS.[1] — XVIII.

Seal of the Dauphin, Humbert II.

OF all the great names of Italy during the Renaissance period none is better known than that of the Medici, who, from being generally known as merchant princes and often slightingly spoken of for having the audacity to mate at times with princes *de pur sang*, are often considered to belong to the ungentle class of self-made men. As a fact the family was, though not noble, an ancient one, and had always taken leading parts in the affairs of the Florentine republic, and more than one member had character enough to give an enduring name to howsoever humble a family. Michael Angelo perhaps did something to perpetuate the fame of Lorenzo the Magnificent and his unfortunate brother Giuliano, by creating the famous tombs in San Lorenzo with their well-known unfinished figures. The skill of another famous sculptor also added lasting qualities to the name of a later member of the Medici family, Cosmo, first Grand Duke of Tuscany, and named after Cosmo the Great, who was practically the founder of the family's power, as his descendant was founder of its dynastic character.

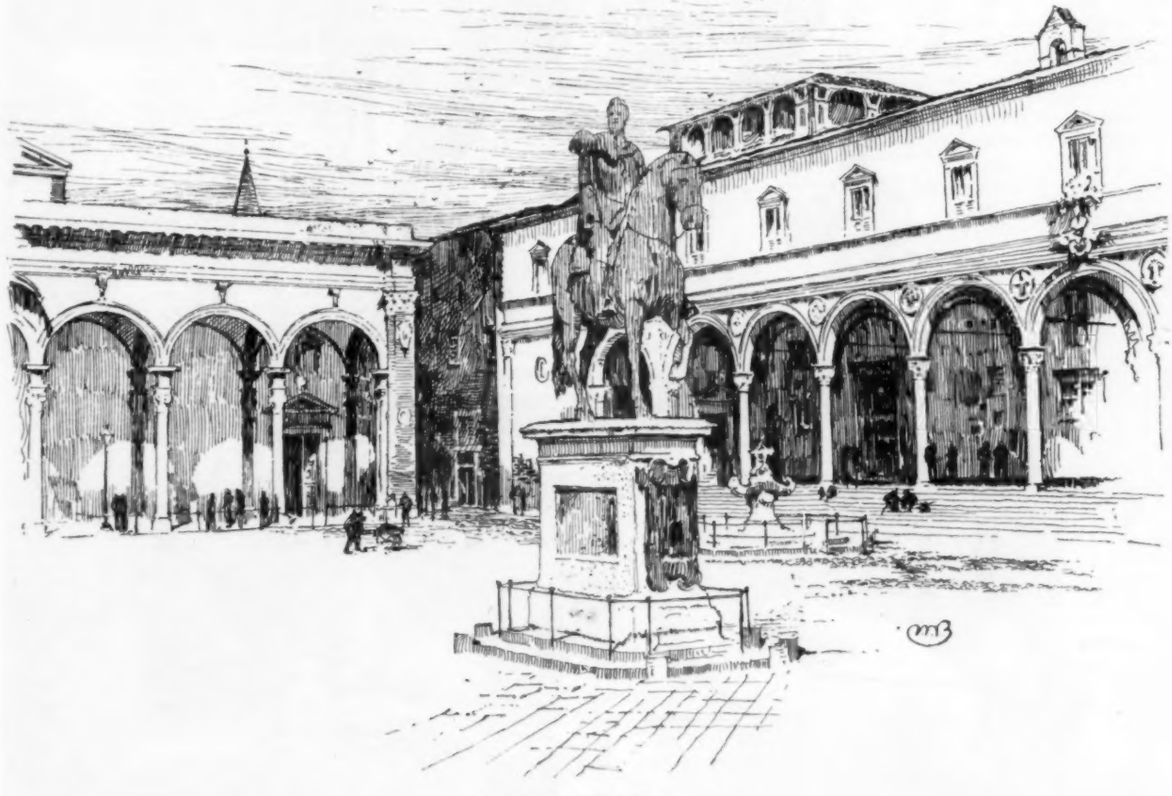
John of Bologna has rather given the lie to history by the noble portrait statue he has left of a man who holds rank amongst the tyrants of Italy.

> "Among those awful forms in elder time
> Assembled, and through many after age
> Destined to stand as Genii of the place
> Where men most meet in Florence, may be seen
> His who first played the Tyrant. Clad in mail
> But with his helmet off — in kingly state
> Aloft he sits upon his horse of brass."
>
> — *Samuel Rogers.*

This rather benign-looking middle-aged man, whose face indicates firmness of character but not brutality, does not look like one who would keep a paid band of assassins to help in the execution of his schemes of ambition, and one is tempted to believe that the Belgian sculptor was a bit of a courtier. The portraiture is, however, of so vital a character that the original of the statue may have been one of those controlled natures whose body is wholly subject to the will, and the alleged habitual Italian duplicity may have enabled him to give his ordinary facial expression a benignity that belied his intentions. After all, Cosmo was not a tyrant of the worst type. The history of the statue, which stands in the Piazza della Signoria, the most popular quarter of Florence, is somewhat peculiar. It was at one time determined to erect in this piazza an elaborate fountain, and, though a young man, John of Bologna had hopes that the task

The Piazza della Signoria, Florence.

would be entrusted to him; but his powers were distrusted and the work was placed in the hands of Bartolomeo Ammanti, who executed the fountain of Neptune that still stands there. Piqued by this failure the young sculptor at a later day made a rendering of the same subject, which survives in the shape of the famous Fountain of Neptune before the Palazzo del Podestà at Bologna. But to take the edge off his failure to secure the Florentine fountain, the task of creating an equestrian statue of Cosmo was at once placed in his hands. It would seem, though, that of the two problems much the most difficult one had been entrusted to the younger man. Very likely there may have been something frivolous in the character of the times when a fountain outranked an equestrian statue in the scale of importance.



Ferdinand de' Medici, Florence.

John of Bologna threw himself into his task and labored long —

[1] Continued from No. 704, page 299.

from 1587 to 1594 — and earnestly, and when at length the statue was completed he had the hoardings removed and hid himself behind them to catch the first criticisms that passers might utter. Apparently the verdict was favorable, for the only change that he was led to make was to add on the innerside of the horse's forearm those peculiar horn-like protuberances, the evidence of some function suppressed through evolutionary process.

The horse shows the influence on the sculptor of his study of the few equestrian statues that were then accessible, notably the horse of Marcus Aurelius at Rome, but it can hardly be held to rank with the rider as a piece of art, and were it not for the position in which it stands and the sculptor's fame, it is doubtful if the group would rank above the mass of mediocre statues.

"There's a palace in Florence, the world knows well,
And a statue watches it from the square,
And this story of both do our townsmen tell."

. . . . . .

"The Duke had sighed like the simplest wretch
In Florence. 'Youth — my dream escapes!
'Will its record stay?' and he bade them fetch

"Some subtle moulder of brazen shapes —
'Can the soul, the will, die out of a man
'Ere his body finds the grave that gapes?

"'John of Douay shall effect my plan,
'Set me on horseback here aloft,
'Alive, as the crafty sculptor can,

Cosmo de' Medici, Florence.

But having succeeded once it was quite natural that the sculptor should, at a later day, have been entrusted with the making of an equestrian statue of another member of the Medici family, Ferdinand I, a younger son of Cosmo, who finally succeeded to the dukedom.

About this statue there is a pretty bit of romance which Browning partly tells in this way:

"'In the very square I have crossed so oft:
'That men may admire, when future suns
'Shall touch the eyes to a purpose soft,

"'While the mouth and the brow stay brave in bronze—
'Admire and say, "When he was alive
"How he would take his pleasure once!"

"'And it shall go hard but I contrive
'To listen the while, and laugh in my tomb
'At idleness which aspires to strive.'"
—From Browning's "*The Statue and the Bust.*"

Trained as an ecclesiastic, as was then the common lot of younger brothers, perhaps Ferdinand was too cautious to take the risk or

Philip III, Madrid. From *Zeitschrift für Bildende Kunst.*

lacked the promptitude needful to enable him to possess himself of the beautiful wife of one of his nobles whom he had learned to love through seeing her at a window as he rode by, and therefore dallied

Philip IV, Madrid. From *Zeitschrift für Bildende Kunst.*

so long with his mute passion that the chance was lost, and the lady died. And in commemoration of this platonic episode he caused the statue to be erected with the face upturned to the familiar window above which was placed a bust of the lamented dear one looking kindly down on her too timid lover.

The statue, cast from cannon taken from the Turks by the Knights of St. Stephen, stands in the Piazza della S. Annunziata at Florence, opposite the Foundling Hospital. The statue was ordered in 1601 and the horse was successfully cast in 1603 and the figure of the rider two years later which, considering that the sculptor was an octogenarian, was most expeditious work. He did not, however, live to see it set on its pedestal, which was done five months after his death. The merit, as in the earlier statue, here lies in the portraiture of the rider.

Charles Emmanuel of Savoy, in the Lowenberg, Cassel. From *Zeitschrift für Bildende Kunst.*

Besides these statues, John of Bologna, as has been stated, was engaged by Marie de' Medici to make the statue of Henri IV, but only succeeded in his advanced age in modelling the horse, and in the time between he modelled an equestrian statue of Philip III of Spain, now at Madrid, which Ferdinand de' Medici desired to present to that monarch just as he intended to present a statue of Henry IV to Marie his widowed cousin.

John of Bologna was the fashion just then. As the photographic camera was an undiscovered apparatus, the skill of the painter was sometimes called on to furnish a sculptor at a distance, in another country in this case, with the needed data for his task, and like other Spanish monarchs Philip III was much given to having his portrait painted. Juan Pantoja de la Cruz was painter in ordinary to the king and naturally he it was who was chosen to paint the portrait of the king which was to be sent to Florence

Bronze Statuette in the Bargello, Florence. From *Zeitschrift für Bildende Kunst.*

to John of Bologna as a guide. The Spanish painter was required, in 1604, to paint the king on horseback and so may have suggested the pose adopted for the statue, in much the same way that the wooden

model of the statue of Henri IV by Francavilla, sent out from Paris to the same sculptor was followed as the foundation of the Italian master's idea. As in the case of the Paris monument so in this, John did not live to complete his task, but left it to the care of the same pupil, Pietro Tacca. The statue was taken to Spain in 1616 and set up in the Garden of La Casa del Campo, near Madrid, where it remained till in 1848 it was transferred to the capital. During one of the late uprisings, known as the period of the Red Republic, it was pulled down by a mob [in 1873] but fortunately not destroyed, so that it was afterward stored in hiding and was at the restoration re-erected in the Plaza Mayor.

The same method of procuring a statue was adopted by the succeeding Spanish monarch, Philip IV, but as John of Bologna had passed away and Pietro Tacca had found favor in his place it was Tacca who had to be furnished with data for modelling an equestrian statue of the king who, whatever other merits he may have had, was famed as the most perfect horseman in all Spain. This fact probably suggested that so noble a horseman should be shown controlling his steed and maintaining seat and equanimity undisturbed by any unusual or violent movement, and accordingly the horse is shown rearing and plunging forward as few bronze horses do. To support a horse and rider of such size — and the group weighs 18,000 pounds — was no easy task, the solution of which is commonly ascribed to Galileo, who probably suggested that by making the castings of the horse's head, legs and shoulders thinner than those of the hinder parts, the centre of gravity could be brought nearly enough over the line of support offered by the hind legs to allow the solid weight of an extraordinarily large and heavy tail to act as counterpoise. The feat once accomplished, practically the same thing has been done with many more recent statues — at Paris, St. Petersburg, Dresden, Lima, Edinburgh and elsewhere — in various stages of agitated erection, some of which are balanced while others are partly supported by the tail which is made to sweep the ground.

Velazquez was the painter selected to make the portrait of Philip IV, which was to serve the sculptor as a model, and the ease with which a painter can pose his figures on canvas without having to take thought for how his poses can be carried out by those other artists who have constantly to keep in mind the laws of gravitation and those which govern strains is not unlikely the reason why a sculptor should have selected so difficult an attitude. It is easy to see, though, how a sculptor might consider that such a picture as Velazquez furnished was nothing more than a challenge which an artist in one kind offered to a rival in a kindred art, and so to the rivalry of race was added a determination to prove that metal could follow the lead of the more facile brush. As this painting by Velazquez has recently been identified in the Uffizi, it should be easy to determine what foundation of truth there is in this supposition. The painting itself was not, or not alone, sent to Tacca, it was placed first in the hand of a Spanish sculptor, Montanes, who carved, as it is understood, a full-sized model of the group in wood which was sent to Tacca at Florence. To whom then should be really credited the merit of this unusual and in many ways excellent piece of work, it is not easy to say, but it seems certain that the names of all three men should be kept associated with the work.

When the statue, which weighs about nine tons, is nineteen feet high and cost 40,000 ducats, was sent to Spain in 1640, it was set up in the secluded Buen Retiro Garden and so was comparatively little known. Early in this century, however, it was suggested that the statue should be taken from retirement and brought to Madrid where more people could see it. But the minister, Gramaldi — probably a connection of the famous Genoese family of that name and not connected, unless possibly a certain crack-brainedness is proof of consanguinity, with the famous clown who for forty years delighted lovers of pantomime in London — roundly declared he would consent to the removal only if the statue were transmogrified by substituting the head of the Bourbon, Charles III, for that of Philip, as he protested that it would be too great an honor for any mere Austrian to be translated to Madrid. Nevertheless the statue, unmutilated, was brought to Madrid in 1844 and now stands in the Plaza del Oriente.

Until within three years this statue was supposed to be probably the first that had been modelled in such an audacious attitude, and to Velazquez has been attributed the pose here carried out, but the investigations of Karl Justi have discovered that the pose was one which Tacca had employed twenty years earlier.

Philip IV, Madrid, Spain.

In the Löwenberg castle, near Cassel, is a bronze statuette, seventy-five centimetres high, which until 1803 was carried on the catalogue as a statuette of Victor Amadeus of Savoy, by Pietro Tacca. At that time evidence derived from the figure itself, paintings and busts, satisfied experts that it really represented Charles Emmanuel of Savoy (1580–1630), one of the most warlike and successful princes of his time. This point decided, documentary evidence was easily discovered which finally made the history of the group clear and establishes the fact that the Philip IV is not the earliest rearing equestrian composition. About half-way through his long reign Charles Emmanuel conceived the idea that himself and his career were deserving of enduring commemoration, so he summoned Tacca from Florence, and in 1619 ordered him to model a colossal equestrian group to be erected at Turin. Tacca made a model accordingly, which was warmly approved and he was instructed to carry it out at large scale. On his return to Florence the difficulties attending the transportation of so great a mass of metal appeared to him to be so nearly insurmountable that he notified the duke that his wishes could not be carried out. But to mitigate the disappointment he was going to inflict he completed his model and made a bronze casting which he finished most carefully by hand and carried it himself to Turin. The duke not only swallowed his chagrin but rewarded the sculptor most munificently and at a later day took the trouble to write him a letter saying how highly he valued the little manikin.

In the same collection at the Löwenberg is another bronze statuette by Tacca, of Albert of Austria, the brother-in-law of Charles Emmanuel, he also having married a daughter of Philip II; in this case the horse does not run but walks. The statuette at the Löwenberg is very similar to one, also by Tacca, in the Bargello at Florence, we might say two, were it not that the second shows only an unmounted rearing horse. These statuettes have been usually considered as studies for the Philip IV, but it is now believed that they were really studies for a statuette of Louis XIII which Tacca, who also practised the goldsmith's art, executed in gold. The fate of this piece of work which was sent by some one as a gift to the French king, is not known. All of these rearing statues must give way in point of age to the rearing mule ridden by Pietro Farnese, which formerly stood in the Cathedral at Florence and possibly furnished the inspiration which Tacca, a Florentine, worked out in these several instances.

From John of Bologna to John of Bologna's pupils is, as seen above, a natural progression and as Tacca was not the only pupil who assisted the master on his later equestrian statues so there are other pupils who profited by their training to make names for themselves. Amongst these was Francesco Mocchi, who executed two very commonplace equestrian statues that stand in Piacenza in the Piazza dei Cavelli at either side of the famous Palazzo Communale, one erected in 1620 in honor of Ranuccio Farnese and the other in 1624 to his more illustrious father, Alessandro Farnese, Prince of Parma, and lieutenant under and successor to the Don John of Austria so famous in the Spanish wars in the Netherlands.

It is rather pitiful that so great a captain as Alessandro Farnese, should in this wise be so belittled, and a character of martial grandeur treated in so ineffective a way, although the ridiculous flowing robes of the later pseudo-classic style make a more agreeable composition than is effected in the case of his son Ranuccio who is clad in Roman armor. Fortunately the greater interest of the Palazzo Communale, in front of which they stand, makes their demerits inconspicuous.

COSMO I [or Cosimo I.] the son of Giovanni delle Bande Nere, was born in 1519, and succeeded Alessandro de' Medici as head of the Florentine Republic in 1537. His election was opposed by a number of citizens who had been exiled from Florence by the acts of Duke Alessandro, and, under the leadership of Bernado Salviati and Piero Strozzi, their forces marched against Cosimo. But Vitelli, who commanded the latter's army, met them at Montemurlo and inflicted upon them a signal defeat. Cosmo behaved with great severity towards the unfortunate prisoners, and many of them, including Filippo Strozzi, father of Piero, were either executed or assassinated. Cosmo, though so young, plainly showed that "he was a man of stern resolve, who went straight to his end without scruples or half measures." Punishing with death all who dared to resist his will, the number of executions during his reign amounted to 146, exclusive of those who died by the hands of his assassins. "He reduced the old republican institutions to empty forms, decreed not only the confiscation of the property of exiles, but likewise that of their heirs, even if personally acquired by the latter," and burdened the people with enormous taxes. He besieged Siena, which was defended by Piero Strozzi, for fifteen months, and finally caused its capitulation on honorable terms, which Cosmo afterwards shamefully violated. On the succession of Philip II to the Spanish throne, Cosmo obtained Siena and Pontoferra, and in 1559 captured Montalcino, thus forming the grand duchy of Tuscany, over which he ruled to his death, in 1574, at the age of 54. Although a tyrant, and in many ways a villain, he ruled his State with great capacity, judgment and firmness, and did not neglect many useful measures for its prosperity.

FERDINAND I. — Ferdinand, son of Cosmo I, was born in 1549, and succeeded his brother, Francesco I, in 1587. Though a cardinal from the age of fourteen, he had never taken holy orders, but he retained the cardinal's purple until the time of his marriage. He showed much tact and experience in the management of ecclesiastical affairs, was affable in manners and generous in purse, instantly pardoned all who had opposed him, re-established the administration of justice, favored commerce, and sedulously attended to the business of the State and the welfare of his subjects, carrying out many important public works. He greatly increased the Tuscan navy, which did itself much honor on the Mediterranean, especially at the capture of Bona, the headquarters of the Corsairs, and by a great victory over the Turks, won in the Archipelago in 1608. Ferdinand founded the Villa Medici at Rome, and purchased many priceless works of art, such as the Niobe group, for Florence. He died in 1609.

PHILIP III, a son of Philip II and Anne of Austria, was born in Madrid in 1578, and began to reign in 1598. Timid, indolent and incapable, he was yet as intolerant as his father. His time was chiefly passed in hunting and in acts of devotion, or in the formalities of etiquette, and the affairs of the government were left to the direction of his favorite, the Duke of Lerma. During the reign of Philip III, the independence of the Seven United Provinces of the Netherlands was recognized, and (in 1610) the Moors were expelled from Spain. Philip died in 1621.

JUAN PANTOJA DE LA CRUZ. — Born at Madrid in 1551, and was a scholar of Alfonso Sanchez Coello. Philip II named him one of his painters and valets-de-chambre and he became very eminent both as an historical and portrait painter. He painted a great number of portraits of the family of Philip II, and at his death, continued in favor with his successor, Philip III. Pantoja died at Madrid in 1609.

PHILIP IV, a son of Philip III, was born in 1605, and ascended the throne at the age of sixteen. He submitted himself to the control of his favorite, the Duke of Olivarez. In 1621, at the expiration of the truce of twelve years, made in 1609 with the Dutch United Provinces, Philip renewed the war with them, and formed a league against the Protestants with the Emperor of Germany. His intrigues involved Europe in a long and disastrous war, in which Spain was opposed by Holland, Sweden, France and England. In 1640 Portugal revolted and was finally separated from the Spanish monarchy. By the treaty of Westphalia (1648) peace was made, except between Spain and France, the latter nation continuing the war until 1659. Philip was twice married, his first wife being Elizabeth of France and his second, Marie Anne of Austria. He died in 1665.

D. GERONIMO, MARQUIS DE GRIMALDI, a Spanish diplomat of Italian origin, was born at Genoa in 1720, and died in 1786. He was made minister of foreign affairs by Charles III of Spain.

CHARLES EMMANUEL I, Duke of Savoy, surnamed the Great, born in 1562, succeeded his father, Philibert-Emanuel, in 1580. He married Catherine, daughter of Philip II of Spain. He was ambitious and warlike, and waged a long war against Henry IV of France. Died in 1630.

RANUCCIO FARNESE. — Born in 1569. Succeeded his father, Alessandro, in 1592. Gloomy, suspicious, covetous and merciless, one of the first acts of his reign was to burn nine women accused of witchcraft. He lived in constant dread of the vengeance of the nobility, whom he insulted and oppressed. A supposed conspiracy enabled him, in 1612, to glut his ire upon them. Seven members of the principal families, among whom was the Countess of Colorno, one of the most beautiful women of her day, were beheaded in front of the windows of his palace. Ranuccio died in 1622.

ALESSANDRO FARNESE, Duke of Parma. — Born in 1546. Grandson of Charles V and of Pope Paul III, and a nephew of Don John of Austria. He greatly distinguished himself under the last-named prince at the battle of Lepanto. He came into the Netherlands, the scene of his chief military renown, in 1578, in which year Don John died, and was succeeded in his command by Farnese. His most famous exploits in the Low Countries, where he was almost invariably victorious, were the taking of Maestricht, after an eight months' siege, and the capture of Antwerp, which only fell subsequent to a siege of over a year. In 1588 he was put in command of the Armada, but, being shut up in Antwerp by the Dutch fleet, could, luckily for him, take no active part in the expedition. He outgeneralled Henry IV of Navarre on two occasions, at the siege of Paris in 1591, and at Rouen in 1592. In this Normandy campaign he received a wound at the siege of Caudebec, which finally caused his death, at Arras, the same year. Farnese was one of the greatest captains of any time, and may be considered as undoubtedly the most able general whom Spain in her palmiest days sent forth to conquer. His moral character also merits admiration, in view of his age and birth, and the fact that he was the instrument of his sovereign, Philip II.

DON JOHN OF AUSTRIA, was the natural son of the Emperor Charles V and a German woman. He was born at Ratisbon in 1546, and was educated by Quixada, a Spanish nobleman. Charles V on his death-bed recommended him to the protection of Philip II, who soon after acknowledged Don John as his brother. At the age of twenty-two, he was appointed commander-in-chief of the forces sent against the Moors of Granada, whom he overcame in several battles and entirely subdued. In 1571, war having been declared between Philip II and the Sultan, Don John was made generalissimo of the combined fleets of Spain and Italy. Sailing from Messina in the middle of September with 250 ships of war and about 50,000 men, he encountered the Turkish fleet in the Gulf of Lepanto on October 7, and gained one of the greatest naval victories recorded. In an expedition against Africa, he took Tunis, Biserta and other places. In 1575 he was appointed Governor of the Netherlands, then in a rebellious condition. At first conciliatory measures were used, but the States mistrusted him, declined his overtures and prepared for war. Soon after he took Namur by stratagem, and in 1578 won the decisive battle of Gembloux. He afterwards reduced Louvain, Nivelles and other insurgent towns. While thus engaged, he was taken ill and died in October, 1578.

[To be continued.]

THE ILLUSTRATIONS

[Contributors are requested to send with their drawings full and adequate descriptions of the buildings, including a statement of cost.]

ENTRANCE TO TEMPLE, NIKKO, JAPAN.

[Helio-chrome, issued only with the Imperial Edition.]

SAWSTON HALL, CAMBRIDGESHIRE; CREWE HALL, CHESHIRE; DORFOLD HALL, CHESHIRE; PLACE HOUSE, CORNWALL, ENGLAND.

[Issued only with the Imperial Edition.]

AGE OF FRANCIS I. — TOMB OF FRANCIS II, NANTES, FRANCE.

[Issued only with the Imperial Edition.]

CHAPEL OF THE GOOD SHEPHERD, BLACKWELL'S ISLAND, NEW YORK, N. Y. MR. FREDERICK C. WITHERS, ARCHITECT, NEW YORK, N. Y.

THIS building has just been erected by George Bliss, Esq., a well-known banker of New York, at a cost of about $75,000, for the use of the inmates of the Almshouse. The design embraces a chapel with seating-capacity for four hundred men and women, and below it a lecture or reading room; a study for the clergy in charge, and a room for the use of the ladies in connection with the City Mission Society of New York. Separate entrances are arranged, one for the men and the other for the women, each of which leads directly up an easy stairway of stone eight feet wide, into the church, and down by steps ten feet wide, to the reading-room below. The chapel consists of a nave eighty feet long by thirty-seven feet wide, and a chancel twenty-seven feet in width, and twenty-four feet deep, terminating in a semicircular apse with a stairway in the turret at the side, for access from the study or robing-room below. A fine organ occupies the chamber provided for it on the north side of the nave, and the font is placed under a recessed arch below the western gable, between the two entrances to the chapel. In the basement is a reading-room sixty-two feet by thirty-six feet, a ladies-room twenty-six feet by fourteen feet, and a robing-room or study twenty-six feet by twenty-two feet. The building is erected of native rock-faced granite, as high as the water-table, and above it the walls are faced with Croton front brick, with all the trimmings throughout of Belleville stone. The brick walls are built hollow, faced on the inside with brown enamelled brick as high as the stone string-course under the windows, and above it the whole of the interior walls are of buff-colored pressed-brick laid in red mortar. The chancel and other arches, doorways, window-hoods, etc., on the inside are trimmed with limestone. The roofs are open-timbered, constructed of Georgia pine and finished in panels with moulded ribs, etc. The benches are open, of quartered oak, and floors of Georgia pine in chapel, and of oak in chancel. The windows of the nave are filled with ornamental glass in colored mosaic pattern, and those of the chancel with figures of Our Lord as the Good Shepherd, and the four Evangelists. The tower contains a fine toned bell, and the chancel is fitted up with altar and reredos, sedilia, stalls, etc., all of oak and neatly carved, brass eagle lectern, and oak pulpit, screen, etc. The contract for the whole of the work was taken by Philip Herrman's Son.

THE PALAZZO COMMUNALE AND THE STATUE OF ALESSANDRO FARNESE, PIACENZA, ITALY.

SEE article on "Equestrian Monuments," elsewhere in this issue.

STATUES OF ALESSANDRO AND RANUCCIO FARNESE, PIACENZA, ITALY.

SEE article on "Equestrian Monuments," elsewhere in this issue. These illustrations are reproduced from Litta's "*Famiglie Celebri Italiane.*"

THE PIAZZA DEL ORIENTE AND THE STATUE OF PHILIP IV, MADRID, SPAIN.

SEE article on "Equestrian Monuments," elsewhere in this issue.

THIRD NATIONAL BANK BUILDING, CINCINNATI, O. MR. H. E. SITER, ARCHITECT, CINCINNATI, O.

PAVILION FOR HIGH PARK.—PAVILION AND BAND-STAND FOR QUEEN'S PARK, MONTREAL, CAN. MESSRS. KNOX & ELLIOT, ARCHITECTS, MONTREAL, CAN.

SAFE BUILDING.[1]—XXIX.

VOL. II.—II.

FROM pig-iron is produced cast-iron, steel and wrought-iron.

Manufacture of Cast-iron. Castings are generally made from pig-iron. In some rare cases cheap castings are made the same as the pig-iron, from the "first melting," that is, directly from the molten ore. Most castings, however, are made from the second melting, that is, the pig-iron is re-melted in a cupola or reverbatory furnace with more flux to take up any remaining impurities, and the molten mass run out into the moulds. The second melting makes of course very much better work. The moulds gener-

Moulds, flask and core. ally consist of a wooden flask or box, made in parts which are secured together by clamps, the parts generally being halves, top cope and bottom. This flask is filled all around the *inside* with a lining of a special dampened black or green (fascia) sand; into this sand the mould or pattern of the outside of the casting is pressed and, after ramming the sand, removed, leaving, of course, the impression of the outside of casting. The core is then secured into position in the flask. The core is the reverse of the mould being sometimes a sand pattern covered on the *outside* with a similar rammed sand made to fit the hollow spaces on the inside of the castings, and stiffened with an iron piece called the "arbor," but usually made of a baked mixture of sand and clay or flour, which forms a friable, infusible mass, which can be easily broken up and removed after the casting has cooled. The top flask is then secured over the whole, and the molten metal is run in through convenient holes left through the flask, until all the space between the core and mould is filled with metal. The gases generated escape through holes left in the cope, and from the core by putting iron rods along the arbor which are withdrawn before casting. The whole is then covered with sand and allowed to cool slowly if of varying thickness; if the casting is long and thin it is "stripped" of the moulding sand to prevent warping. The inside of the mould is frequently painted with coal dust or charred oak, or dusted with flour of plumbago, which generates hot gases that prevent the too quick chilling of the external surfaces of the casting by the dampened sand and makes a clearer surface finish. When cold the top flask is lifted off, the arbor withdrawn and the finished casting removed from the bottom flask. The casting is then chipped off and finished. Small and cheap castings, such as separators, are revolved in a rumble (a

Economical Castings. sort of barrel) for the finishing process. It will be seen, therefore, that the most economical castings will be those which are so designed that the pattern can be easily withdrawn and the flask readily made in simple parts; in which case it is only necessary to line the flask with a fresh layer of sand for each casting. Whenever possible, castings should be made in an upright position (the metal being, of course, run in from the top), as the long core, if horizontal, being unsupported except at its ends is apt to sag in the centre, or float with the metal, making uneven thicknesses in the casting above and below the core. To avoid this the core should be supported by small iron "chaplets," which mix and combine with the casting. There is also danger of slag and other impurities that may be carried into the mould floating to one side. In upright castings or where there are large vents they will float off on top.[2] To discover whether the casting is or is not uneven, the architect should have every column or long hollow casting "tapped"

Inspection by Tapping. at about midway of its length. Tapping consists of drilling a hole, about three-eighths of an inch diameter through the shell. A small wire with the end bent at right angles is inserted in the hole; the bent part is drawn closely to the inside of shell and the outside of shell marked on the wire, which on being withdrawn gives the exact thickness of shell. In case of rectangular or round castings there should be four such holes bored, two opposite each other and the other two the same, but at right angles to the line of the first two. All of course in the same plane, and about midway of the length of casting.

The amount of metal in the shell is then readily ascertained, also whether the casting is of even thickness.

For a good strong casting it is very essential that all parts should

Even thickness best. be designed (and cast) of even thickness. Castings of uneven thickness vary greatly in strength for two reasons. For some reason not thoroughly understood, though generally attributed to the influence of the gases produced in the flask, the outside layers or "skin" of castings is supposed to be very much stronger than any other part. The metal on the inside seems to diminish in strength the farther it lies from the outside. (Experiments as to whether the skin does or does not add strength, however, are contradictory, the latest seeming to disprove the theory of its extra strength.)

It is found, however, by actual experiment that castings from the

Thin castings strongest. same metal, made at the same time, vary according to their thickness in strength, the thinnest being the strongest in proportion to their metal, and the thickest the weakest.

Another serious objection to uneven thickness in castings is the uneven cooling; that is, the thin parts cool before the thicker ones, and the consequence is the production of internal strains in the metal, the parts which have cooled rapidly, contracting and pulling away from the other parts. This means tension, and a constant tension right in the metal and before any external strains come upon it; this frequently is the cause of the sudden and otherwise inexplicable failure of the casting.

It is essential, therefore, that not only should cast-iron cool evenly,

Danger of Sudden Cooling. but also as slowly as possible, to allow the contracting parts to relax.[3] It is well-known that if a casting—column or lintel for instance—be heated in a fire and then suddenly be cooled by a stream of water played against it, that it is liable and likely to snap in two from the sudden tension put on the metal in rapid cooling. For this reason all such castings should be surrounded with non-conducting, fireproof materials wherever placed in inflammable buildings, or surrounded by inflammable goods.

Another essential in good castings is, not to have them too big and

Big castings bad. heavy; otherwise it is impossible to keep the entire mass of same fluidity; that is, to prevent parts from cooling before other parts have yet been filled with molten metal. The result of such castings is apt to be weak from internal strains, due to unequal casting and cooling, to be weak on account of the thickness of the metal, and to be spongy or filled with air bubbles, due to the gases escaping at one end and mixing with the molten metal running in at the other end. Sand-holes in castings are, of course, due to the use of a poor quality of sand or improper ramming or to the presence of dirt, scum or other impurities.

Another essential in good castings is to round all angles, that is,

Avoid all sharp angles. not to go abruptly from one surface to another at a right or sharp angle to the first: this, for the same reason that uneven thickness is avoided, namely, the danger of internal tensional strains.

In casting plates it is desirable to have a large circular hole, if possible, in the centre of the plate, or else several holes, which will largely prevent the great strain, in cooling, on the centre of the mass.

The contraction of cast-iron in cooling, from its bulk when fluid

Shrinkage in Castings. depends on its thickness and its mixture. It is about $\frac{1}{8}$″ per foot for thin castings, for castings $1\frac{1}{2}$″ thick about $\frac{1}{12}$″ per foot, and for castings 2″ thick about $\frac{1}{16}$″ per foot. The moulds and patterns are, therefore, made correspondingly larger than required by the architect's drawings.

All that has been said of iron-castings applies equally to steel-

Steel-castings. castings. But as these are made at a temperature some 700° to 800° F. higher than for cast-iron, the contraction is, of course, much greater, and also the danger from unequal shrinkage. To avoid this, steel-castings are usually annealed, that is, left for some 24 hours in a furnace at 1700° F.—(the melting point being about 3500° F.)—and are then allowed to cool slowly.

In the manufacture of rolled or wrought iron the pig-iron forms

Manufacture of Wrought-iron. the basis, but is sometimes first refined, though in many of the grades the refining is omitted. This refining consists in the conversion of the carbon contained in the pig-iron from the graphitic to the combined state. This is done by breaking the pig-iron into convenient lengths for handling and melting the iron and adding to it different substances to attract and remove the earthy impurities. To reduce the carbon the most usual process is the forcing of strong currents of air through tuyères downwards onto the melted mass, which stirs it up and uniting with the carbon, forms a carbonic oxide gas and ignites and burns part of the carbon away. The melted mass is run out into shallow metal troughs, and cooled suddenly by streams of cold water. The object of this sudden cooling, is to make white iron, that is, to prevent the remaining carbon from separating itself and resuming the graphitic form.

The refined (or pig) iron is next puddled; this consists sometimes,

Refining and Puddling. but rarely, in remelting the iron, being the third melting, adding flux to attract the impurities, they and the flux being run off as iron slag; but usually in puddling the iron while it is still in pasty form, immediately after the removal of the carbon in the second melting or refining process. The pure iron forming a pasty mass is collected into separate lumps called puddle

[1] Continued from page 287, No. 703.

[2] On the muzzle end of cannons are cast heavy "sink heads," which contain the greater part of all impurities, leaving the good solid material for the guns proper. In heavy castings a flow or pathway is provided, more metal is poured than needed, and as it flows off it carries with it the dirt and impurities.

[3] When castings of unequal thicknesses are required, as for instance in fly-wheels and pulleys, the strains from unequal shrinkage are prevented by so removing the sand from the hot casting as to have all parts cool together. The thin parts or arms being kept covered until the heavier rim and hub have been hurried in cooling by uncovering them.

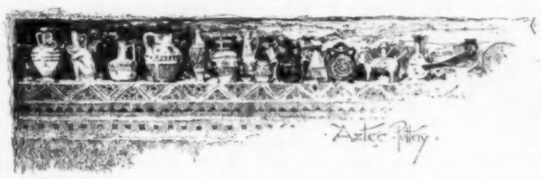
From puddle ball to muck bar.

balls or loups, by the puddler, who stirs the mass around with his puddling bar, thus gradually forming the balls. When the puddle ball is of sufficient size, usually weighing from one to six hundred pounds, the puddler draws it out of the fire, and throws it on a wheelbarrow or truck; it is now run as quickly as possible to a steam hammer, where it is thoroughly pounded and thus welded into wrought-iron; or in more modern mills it is put into a rotary (Burden) squeezer which consists of a corrugated pinion and iron collar, situated one within the other, but eccentrically; the pinion revolving inside the collar, which is stationary, the puddle ball going in at the wide end, is kept constantly revolving by the corrugations, and at the same time is squeezed and drawn through and reduced between the pinion and collar, finally emerging at the other (narrow) end in cylindrical shape, and in nature partially rolled-iron, the slag and gases being squeezed out. From here it is taken while still heated, and several times run through between a pair of rollers which revolve in opposite directions under great pressure; these rollers have grooves along their surfaces, the largest at one end and diminishing gradually towards the other, thus gradually shaping the mass as desired into "muck bars," which are pieces of partially rolled-iron of convenient size and shape for handling, usually from 3 inches to 6 inches wide and ½ inch to ¾ inch thick in section. The length of each bar, of course, depends upon the weight of puddle ball.

LOUIS DECOPPET BERG.

[To be continued.]

VENETIAN GLASS.[1]



IN accepting the invitation of the Committee of the Applied Art Section to read a paper on the manufacture of Venetian glass before this Society, I fear I may have undertaken too great a responsibility. It is a subject which, from its ancient and historical treatment, may suffer at my hands. I can only say I will do my best, and should the subject be inadequately presented by me, I shall beg your indulgence for all shortcomings.

I need not mention here the tradition of the first discovery of glass; we have all read of the Phœnician dealers in soda, who, while taking refreshment on the banks of a river, noticed with great astonishment that the amalgamation (produced by the action of their fire) of soda with sand and the herb alkali, had produced a transparent substance, which was afterwards purified and otherwise improved till it was converted into glass. How far this tradition may be true this is not the place to discuss, for I must confine myself to that specialty which is known as Venetian glass.

You are doubtless aware that Venetian glass is not actually manufactered in Venice proper, but at Murano. Venice being the most important and best known city, has always lent her name to the art.

Murano is the prosaic name of an island built on the north of Venice, from which it is distant about half a mile. It is said that the name was derived from the Latin words, *murus muralis*, but I believe the name has a more local derivation. The island being washed by a northwest current of the Adriatic sea, which by its ebb and flow continually removes the otherwise stagnant water of the lagoon, I think that the true derivation of its name is from *maris, amnis*, which means "river of the sea," and in the subsequent changes of the language became Murano.

Is said that the reason Murano was chosen as the seat of the art of glass-blowing was on account of its peculiar geological position, which has no rival in Europe, and is only partially equalled by Reichenau in Bohemia.

The bed of the sea which washes the shore of Murano is composed in great part of quartz or silica, materials which are brought thence from the Alps in torrents. These materials or sand form one of the principal ingredients needful for the manufacture of Venetian glass. I may mention that some time ago the Minister of Public Works, on the request of the Chamber of Commerce of Venice, prohibited the use of this sand for any other purpose, and also prohibited its exportation.

There must be something peculiar in the natural position of Murano, as is proved by the fact that when the demand for the glass increased almost beyond the capabilities of the restricted space at command, the Muranese did not think it advisable to extend their furnaces and works to the neighboring islands. Not only is this restriction attributable to the natural position of Murano, but also to the personal pecularities, in some measure, of the artists themselves.

They commenced their works naturally with the simplest forms used in daily life; afterwards, when they found a demand for something richer, more elaborate and complicated in design, they worked on step by step in their profession, discarding all use of moulds and contrivances for making easier and quicker their labors, intent only on perfecting their art works, and making every piece a real work of art, of which they are and always were extremely proud. So much do they identify themselves with their works, that there are certain forms and designs which are quite traditional. These have been handed down for generations from father to son, and are known by the family name of the artist producing them.

It would seem from the variety and immense numbers of tints and shades, that a knowledge of chemistry would be needed in the formation of the base of this manufacture. Such, however, is not the case as a reflection on the ignorance of this science 200 or 300 years ago will prove. This was about the time when Murano began to be renowned for her splendid productions, a renown which has been more or less maintained until the present day.

The artists had neither the time, nor the means, nor desire, to occupy themselves in chemical studies; but continual experiments and practice on certain traditional lines, together with patience and determination to succeed, are and have been the chief moving powers in their works.

Some time ago a celebrated professor of chemistry while questioning an old artist as to the manner in which he learned to make such an enormous variety of tints, asked him by what means he had arrived at such knowledge. The old artist told him that the grammer which he studied, and which was the key to all his success, was practice, and that he would defy the professor, with all his scientific skill, to produce the same color as he had just then produced. He added that the Muranese artists were like the birds, who could sing without having learned music.

For certain compositions there are naturally secrets, which are kept with scrupulous care, and handed down from father to son either by example or by simple writings.

Owing to the extremely good feeling which has always existed between Murano and the city of Venice, the former was specially favored, and received many honors from the "Queen of the Adriatic." In the year 1223, the doge and senators gave instructions that the names of the principal *maestri*, or heads of the glass-blowers, should be entered in the public records as being the names of persons to be held in high esteem and respected in the history of the republic. The senators and the Council of Ten established laws for the protection of the glass manufacture.

At the period of the Renaissance the works at Murano had reached such a point of perfection as to eclipse, by the originality and beauty of their productions, all the works in glass made by the Egyptians, Etruscans, and Romans.

The artists of this age were invited to and received at all the courts of Europe, and their works were universally proclaimed as exhibiting the inspiration of genius, and as doing the greatest honor to the industrial arts.

The Venetian government at this time was well aware of the immense moral and financial advantage which this manufacture brought to the country, and consequently took every precaution to prevent the secret of the manufacture from being learnt by foreigners, and the Murano workmen were absolutely forbidden to carry their skill beyond the boundries of the island of Murano. Artists who were by any means seduced from their allegiance, and persuaded to accept employment in other parts of Europe, were visited with severe punishment, and in some cases by actual death, while the State rewarded those who, by special skill or otherwise, distinguished themselves, and who remained faithful to their country, the senate even granting them the privilege of electing a chancellor to administer justice at Murano. The Venetian nobility also did not think it derogatory to their position to marry their children with the children of the Muranese *maestri*, and the children born of these marriages retained all the privileges of the nobility.

But even to Murano this age of glory and prosperity was not to be perpetual. By-and-by the "Queen of the Adriatic" declined, and the sunset of her political and industrial day caused the decadence also of her cherished and beloved neighbor, the island of Murano. In the 17th century the artistic perception of form and color was lost, and it was distressing to compare the heavy, shapeless, highly-colored objects then made with the exquisite colors and graceful designs of past years. The darkness of night had succeeded to the light of sunny days, which appeared to be gone forever.

The republic made several efforts to arrest this decay, by loading the artists with gifts and by granting them many privileges, also by imposing heavy taxes on the importation of foreign glass. Still the French and Bohemian glass had taken a strong position, and the continual purchase by Venetians of these wares contributed to the dying out of what until then remained of the production of art in Murano.

In the year 1700, when the art of glass-blowing was at its lowest ebb, Giuseppe Briasi made efforts to give new life to it, and being possessed of an indomitable will and great perseverance, he endeavored to restore the ancient beauty of form and color, by producing some fine specimens of chandeliers and candelabra and vases, in which could be seen some remnant of the past glory, but the prevailing taste of the period only served to injure instead of improving his efforts. His efforts were followed by others, viz., Bigaglia, Seguso, Barbini and Mialti; but all suffered the same fate, and their labors were rendered futile by the prevailing taste of the time, and their labors resembled the last dying flicker of a candle previous to its entire extinction.

At last the republic died, and the art of glass-blowing at Murano,

[1] A paper read by Dr. Giulio Salviati, before the Society of Arts and printed in the *Journal* of the Society.

which had hitherto been guarded and protected by Venice, fell into lethargy, but it was not really dead or even entirely forgotten. The elements of its existence and prosperity were not entirely dependent on political changes; and its traditions were bound up in the souls of the old artists of Murano, descending to their sons and grandsons, and it only required a fresh impulse to dispel the torpor and gloom in which it was sunk.

It was the pleasant duty of my father, Dr. Salviati, to give this first impulse and to raise the dormant genius, and give new life and energy to this lovely and brilliant art, with what success we all know. My father was a lawyer of good repute, and while exercising his professional duties at the Venetian forum, he spent his leisure hours in admiring and studying the sublime works left by his ancient compatriots. It grieved him that such lovely works should be doomed to oblivion, and in the year 1856 he conceived the arduous idea of reviving the mosaic art, and resuscitating it from the tomb of the past. He read and studied all books relating to the manufacture of gold and colored enamel, and having associated himself with Lorenzo Radi, of Murano (an artisan who for many years had occupied himself in studying the manufacture of the first material necessary for mosaic), he relinquished his profession of the law and dedicated all his energies and fortune to the development and perfection of the gold and silver and colored enamels for the manufacture of Venetian mosaic.

Their first joint attempts were so successful as to deserve the highest encomiums from the Royal Academy of Fine Arts in Venice. A committee, consisting of painters, sculptors and architects, was chosen from members of the Academy, to carefully inspect, examine and report upon the enamel produced by my father. After carefully examining, they declared that "the gold, silver and colored enamels produced by Dr. Salviati are even superior to the enamels of ancient times." It is not within the scope of this paper to give a history of the revival of mosaic by Dr. Salviati, nor a *résumé* of the various failures and successes by which the result was obtained, only to say, that this discovery of the means of making the enamels was the first step in the revival of the art of glass-blowing at Murano, as it was whilst so occupied that Dr. Salviati was persuaded to attempt also the restoration to Venice of this lost art. He was much helped and encouraged in the enterprise by Mr. Norman Shaw, one of the chief ornaments of his profession as an architect, who was quick to perceive that my father possessed the needful element of perseverance for this revival. He was also ably helped and advised by the late Mr. E. W. Cooke, R. A., the late Sir Gilbert Scott, also by Messrs. Clayton and Bell and others, who saw in the revival of mosaic a hope that the glass industry might also live again.

My father never ceased to express how grateful he always felt to these gentlemen for their artistic advice and help to him, and for their very valuable councils and encouragements, which helped him to persevere and conquer the apparently insuperable difficulties in his path.

The composition of the first material needful for the manufacture of mosaic has many of the qualities necessary for the production of the Venetian glass composition, hence it was an almost certain conclusion for a man with the energy and determination of Dr. Salviati not to rest satisfied when the difficulties of mosaic were conquered until those of the glass were also surmounted. It was no easy task to train the glass-blowers, and to make them forget the clumsy and heavy productions to which their hands had become accustomed, and to resume the light and elegant forms of the past times when Venice showed so great a pride in her artists, especially when we consider such lessons had to be given and received before a burning furnace, and then, even when success crowned their efforts, there were many disappointments. I need not enumerate the numerous difficulties which had to be met and overcome before Dr. Salviati was in the proud position of being able to say, "Now again is Venice famous for her blown glass and mosaics."

The glass-blower of Murano is no mere mechanic or artisan, he is in every respect a true artist, an artist endowed with the perception of beauty and genius, who invents and creates daily new forms and colors. The glass is to him what the chisel is to the sculptor, the brush to the painter, and the works he produces are the offspring of his talent, and the perfection of form, delicacy of color and lightness, are his hobby, and when, after several arduous trials, he succeeds in producing a splendid specimen of his art, all the fatigue is forgotten in the legitimate pride and pleasure with which he looks upon it and says "This is mine."

Under the name of "Venetian glass" is comprised not only the elegant vases and goblets and ornamental objects, but also chandeliers, candelabra, mirrors, table-glass and roundels of sheet-glass for windows, etc., for which Venice was famous.

There are a number of names used to express the various kinds of glass, thus: The "ritorto," a kind of stripe of different colors on a plain ground; the "fiamma," a mixture of many different colors, so named from its appearance of flames; the "retticello," which represents delicate lace-patterns; the "aventurine," looking like brilliant gold; the "festoncino," having the appearance of threads; the "chalcedony," looking as its name signifies, like some stone or marble, etc. These various compositions all require different treatment, many needing several days in preparation.

The tools used by the artists are few and very simple, a hollow, long tube of iron for blowing, a large pair of shears for cutting (similar to those used by tailors), a few other instruments for measuring, and a stamp with a strawberry-shaped die, these compose all the instruments used in the production of all the articles, even in a *tour de force*, which is the term used to express the most complicated designs. The production of a vase or other article is obtained in this way: The end of the blowing-rod is dipped into a pot containing molten-glass, and a portion of it accumulated on the end. It is essential that the quantity which adheres to the rod should be accurately guessed for the size of the vase or other object which it is intended to produce, be it a small wine-glass or a large tazza. If the quantity taken up is too small, the article produced will not be of sufficient size, and naturally if too much is taken, the article produced will exceed the required dimensions. This lump of liquid-glass is then rolled on a table by giving a few turns to the blowing-rod; it is then blown by the artist slightly, then re-heated in the furnace. This process is repeated each time the article takes a more definite shape, until after repeated heating and blowing, the lump of glass is blown into a vase, cup or other article. During the whole operation the artist remains in front of the furnace, as the material must be kept in a liquid condition until the right form and size are obtained. Having thus made the body of the object, the artist now proceeds to form the foot or stand. In this he is assisted by another artist of an inferior grade, who has prepared meanwhile a piece of the necessary material on a blow-pipe, and who has blown it hollow. This he keeps in a liquid state, and in order to prevent it from dropping off his pipe he has to continually turn it round and round. The right moment must be watched, and then the two parts are joined; a twist, a pull and a little dexterous manipulation, and the stem is formed. The article is again placed in the furnace; meanwhile the maestro, or chief artist, takes up a small portion of another colored material, then, taking the article from the furnace, he proceeds to ornament it with strawberries, flowers, leaves or other devices; between each operation the article is introduced to the furnace to keep it soft; of course it has to be carefully held in shape. It is astounding to see the numerous variety of decorations which the artists produce for the embellishment of the objects. There are serpents, dragons, flowers, leaves, handles, etc., nothing is too complicated or simple, one and all are modelled by these instruments. Some vases require the attention of four artists at the same time, and require from one to two hours of uninterrupted labor. During this time they are placed in and out of the furnace thirty or forty times. While they are in the furnace they have to be kept in position by a special artisan called a "forcellante," whose duty it is to keep the article turned round and round, and who must watch that it does not drop or any way lose its form; for this purpose he uses a long fork-like instrument, this he has to do standing in front of the mouth of the furnace until the article is sufficiently cooled to retain its shape without assistance; then by slow degrees it is introduced further and further into the cooler part of the furnace where it remains cooling until the following morning. The painter and sculptor know how difficult their art is, and how much practice they must go through before they can draw a model accurately. How much more difficult, then, must it be for an artist to have to mould his subjects from the pliant and semi-liquid glass, and to be obliged to work at such a speed as to prevent the glass from cooling too much for manipulation.

This general process of blowing is applicable to self-colors, such as opal, ruby, acquamarina, etc.; but when the object to be produced is to be made of the richer and more complicated wares, such as the reticillo, ritorto, filagree, etc., then the material requires a separate preparation, which process (according to the material required) takes from one to three days. These are prepared in long strips called "canna," and when covered with crystal and ready are placed side by side on a kind of shovel, which is put into the furnace; as they melt they adhere to each other, and the workman with a piece of half-melted glass on the end of his rod presses on the ends, then with a dexterous twist he winds them all up into the form of a cylinder, the end of which is fixed to the handle that is to control them during subsequent operations. When thus ready, the artist dips the end of his blow-pipe, charged with the cylinder of prepared strips or canna, into a pot or ordinary clear glass, which is to protect the delicate lace work or the sensitive aventurina. He then proceeds to roll them on the marver or little iron table, and when by heating, rolling and blowing, they form a compact body, he proceeds to cut off a piece of the required size, taking care that the strips are all evenly joined. The vitreous mass thus obtained is then treated by the artist in a manner I have already described to you, and he proceeds to fashion his jug, vase, glass, tazza, or other object. The pattern which was thus imprisoned in the small strips is now by blowing fully developed.

If no twisted movement has been given during the operation, the lines of lace-work or other work remain straight; if, on the other hand, a different movement has been given during the process, the lines will have a twisted effect, as is often seen in Venetian glass. The filagree is prepared by minute thread-like strips enclosed between two sheets of crystal glass; the threads are sometimes crossed and then minute air-bubbles are imprisoned between the two sheets of glass, having a very beautiful effect when completed.

The "fiamma" is prepared thus: Upon a hollowed and rolled lump of material are laid strips of aventurina and other colors which are to form the "flames," which are wound spirally round; they are then heated, and whilst in the oven, and before the fusion has proceeded very far, a sharp edge piece of iron is drawn across them

several times, so that there are ridges both ways on the mass, which gradually amalgamates into one piece. On coming out of the fire, the object is subjected to extra twisting beyond that necessary to give it its proper form.

The "millefiore" is a lengthy process. First there are strips made of a certain pattern according to the taste of the artist; these strips are encased in clear glass cut up into lozenge-shaped pieces, then laid on a surface of any colored glass desired to form the ground-work of the contemplated article, the whole is then heated and blown, developing as it proceeds, the pattern contained in small lozenges on a clear or colored ground, producing a lovely effect. By this process all kinds of designs can be produced, animals, insects and even portraits, distributed all over the vase, jug or other form. A portrait is formed by the artist taking several strips or canna of the requisite tints, and putting them together in a similar way by which a mosaic protrait is made; this is, as may be imagined, a very delicate and difficult operation. When thus arranged they are covered with a thin coat of crystal, which serves the double purpose of keeping them in place and of preserving them; the mass thus prepared is then inserted into the furnace, and when it commences to melt, two artists, each having an iron tube with a piece of molten crystal on the end, take hold of the mass, one at each side, they move very quietly in opposite directions, which has the effect of elongating the round strip, which is stretched longer and longer until it presents a long, thin round strip, which has been kept firmly in place by the coating of clear glass, and which preserves perfectly the portrait all through. This strip of prepared canna is then cut into very thin lozenges and used the same way as in the previous preparation, being used to ornament plates, jugs, goblets, etc.

The aventurina is a metal preparation produced by the fusion of various component parts; this is a material used to give the exquisite brilliancy and lustre so much admired in Venetian glass; it is a very difficult and tedious process, and exceedingly uncertain in its results. This process is one of the chief secrets of Venetian glass, and is only known to one or two of the maestri. It is said the name "aventurina" is derived from adventure, on account of its always uncertain results. The use of a little more or less heat than is absolutely necessary, or some other cause (mostly inexplicable to the most experienced artist himself), will cause the whole mass to be a failure, after three or four days' labor. Instead of being the brilliant aventurina the artist expected, he finds on opening the oven a mass of composition of a dull brick-like color.

The aventurina is used not only in the glass-blowing, but also in the jewelry when it is cut and polished. When used in glass-blowing, a great amount of care must be exercised, and it must be protected by a covering of crystal, otherwise all the sparkling effect would be lost.

The fires used in blowing Venetian glass are made of wood, coal being useless on account of its generating too much smoke and gas, which prevent the delicate ornaments used in decorating the various objects from adhering. Ornaments and vases made by *coal* or *gas* alone would soon separate into their various parts.

The artists are from their entrance allowed a certain time daily for study, during which they design and create new shapes and colors. In this, of course, some are more skilful than others. They work together in the greatest possible harmony, each one aiding the other to develop and perfect any new idea, and the interest with which they all anxiously await the moment when a new shaped vase or a new combination of color is to be withdrawn from the oven is surprising. There seems no personal jealousy, every one is equally as interested, from the youngest boy to the oldest man. They perfectly understand the capabilities of each one among them, and when the vase or tazza, or other object is to be made, each artist immediately prepares for his individual part; thus, should the object required be of unusual dimensions, it is at once undertaken by those men who have the strongest lungs for blowing; again, should it be an exceptionally fragile and delicate vase, it is undertaken by the artists known to have the lightest hands; the most difficult forms such as griffins, dolphins, birds, etc., being the special work of certain artists only. I do not think it is easy to find such harmony as exists between artists employed at Murano. I can say that I never heard an angry word among them, and all mutually help one another; they are more happy when at work than when having holidays. These they are obliged to take during the end of July or August, when the furnaces are allowed to go out. The temperature being excessive, it is found impossible during this period for the men to work, so this opportunity is taken advantage of to build new furnaces.

There is one dreadful circumstance which they must all face, and this is blindness. It is unhappily the fact that nearly always, after many years of work, and when they are between forty and fifty years of age they begin to lose their sight, and after a little while they can see no longer. There is no means of preventing this; it is caused not only by the excessive heat, but also by the glare of the continual flames. Many things have been tried, and several kinds of protection for the eyes but without avail.

Fortunately, when the dreadful event occurs, they have not the additional suffering of want to face, for while at work their wages are very high, often surpassing those of their magistrate, and their mode of life is simple. They thus save large sums, and their declining years, if passed in darkness, are at any rate of ease and comfort in other respects.

I will now conclude my paper by simply stating that it is now over twenty-five years since this beautiful art of Venetian glass-blowing was revived by my father, and that it has continually progressed in form and colors, the always increasing demand for it, not only in this country, but in France, Germany, America, and indeed all parts of the globe where people are cultivated and appreciate works of art. Its cost, as you can understand, now that I have told you how each piece is made, is naturally greater than that of those glass articles which are moulded, but then its beauty is equivalent to its value.

COMMUNICATIONS

[*The editors cannot pay attention to demands of correspondents who forget to give their names and addresses as guaranty of good faith; nor do they hold themselves responsible for opinions expressed by their correspondents.*]

THE AMERICAN INSTITUTE OF ARCHITECTS.

NEW YORK, N. Y., July 13, 1889.

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

Dear Sirs,—I have just read the first three editorials in your issue of to-day.

Referring to the first one, let me say, as Secretary of the Institute, that no official decision has yet been arrived at as to the place of meeting of the joint Convention of the Western Association and the Institute, though Cincinnati was suggested. Also, that at a recent meeting of the Board of Trustees, held just after my return from abroad last month, the feeling was almost or quite unanimously expressed, *à propos* of a letter of inquiry from Mr. Patton, Secretary of the Western Association of Architects, that while it is not desirable until unification be accomplished to encourage fresh applications for admission to either organization, nevertheless (to quote from the minutes) "the Board of Trustees of the American Institute of Architects considers itself bound by its present By-laws concerning admission of members until consolidation is effected, lest some desirable applicant might be discouraged; and the Board is of opinion that similar careful admissions would be perfectly proper on the part of the Western Association of Architects." Ever since the Institute and its natural outcome and coadjutor, the Western Association of Architects, have been engaged on the inevitable desideratum of unification, I have—for the reasons implied in your leader, as for others—not exactly discouraged, but gone somewhat slowly with, candidates for the existing Institute, and, according to the circumstances of each case, referred them, either directly or by implication, to the approaching new conditions.

Referring to your second and third editorials, while I have good reason to know the very great diversity of opinion, alike among Eastern, Western and Southern members and candidates on the question of the proper place for the headquarters of the Institute when augmented and practicalized for the fulfilment over its whole field of the nearly perfect (if, at the same time, seemingly too ambitious) federalizing programme under which it was reorganized in 1867, I may say that personally (and you will please understand that on this point I am speaking without the slightest official authority), I have all along been in favor of the capital of the nation being the headquarters of the executive managers of the reorganized Institute. I presume it is to these always-employed directors you refer when you rightly insist that, in the interest of the whole organization, they must have permanent headquarters; for, as regards the Institute proper, that is, in its component parts, the Chapters (equivalent to the State associations of the present Western terminology), I have never seen any reason to change my old opinion that, as it has hitherto met and is intended to meet but once a year, it is not only entirely practicable to continue it as a "peripatetic body," but that it is for many reasons very much better, and is, indeed, almost indispensable to its maximum success, for some years, at least, to come, that it should be so.

The same reasons that make me personally prefer Washington as the headquarters, for current executive purposes, of the amplified and better endowed Institute (though I foresee very considerable drawbacks, as well as the advantages, which alone seem to strike you, in the frequent and close contact with congressmen)—some of these same reasons make me personally, also, prefer it as the place for the joint Convention at which the two organizations are to be fused together; and as you feel called on to say that "a strong effort will undoubtedly be made to keep the Institute offices in New York," and as I know that a strong effort has been and is being made to have the joint Convention held in a city naturally amenable to sectional influences, instead of in the single national, and, therefore, neutral city of the United States, you will, perhaps, allow me to quote a few lines on this point from a letter I wrote last April to Mr. Gibson, who so kindly and efficiently acted for me while I was recuperating abroad, to wit: "I sincerely hope that . . . the Convention [will be] held in the only national city—the 'Federal City' was its original name until Congress honored it with Washington's—which, from a four years' residence there [in an official position bringing me into responsible and constant relations with congressmen, the officials of the departments and society in general], I know to be really, as well as theoretically, independent—as regards national

questions, though there is plenty of local feeling as regards District [of Columbia] matters — of North, South, East or West; whereas no one can fairly deny that Cincinnati, though far east of San Francisco, or even of Omaha, is, nevertheless, a centre which would naturally attract an assemblage of distinctly Western prepossession."

The mere geographical question of centre of population or of membership in existing architectural brotherhoods has really almost nothing to do with the question of the proper locality for the impending Convention. The needful thing to do is to select where those attending from both organizations will be the most likely to find an environment wherein can best be preserved the balance between the equally important desiderata of fresh blood on the one hand and of experience and prestige on the other. And I am convinced that this environment exists more completely and that this balance can be better maintained in Washington than anywhere else.

Finally, as bearing upon the foregoing you will perhaps permit me to quote somewhat further from my letter just mentioned. I said: "What is needed now for success is not the uncovering of mares' nests, is not talk (however clever), is not the elaboration of preambles and resolutions which no one hears of again after the Secretary's time has been taken up in copying and distributing them, is not the appointment of committees which seldom meet but once and can accomplish nothing if they do meet oftener, is not disjointed and fruitless preliminary action in a dozen different bodies, each without prestige, numbers or means to turn its verbiage (however apposite) into anything available or practicable; but, on the other hand, what is wanted are, augmentation of members and consequent means of paying for the work that must be done, instead of draining it out of the strength, time, opportunities and personal resources of those who, it is only fair to suppose, need all these as much as others for their own individual purposes." . . . "Ridding themselves simultaneously of whatever Philistinism may exist in their own ranks, and concentrating their scattered forces, practitioners all over America would then stand with a single front, united and successful, against outside Philistinism; while divided as now, their various representative societies drag on a comparatively inert and inefficient existence, quite inadequate to their ambitious programmes, and to what, at least, ought to be the aim of all of them, as well as of the parent Institute, viz., the securing of the maximum 'efficiency of the profession,' which can only be secured by commanding for it its due rights, in the eyes of the public, as a homogeneous profession; and this, it is obvious, is not at all covered by the success, as individuals, here and there, of practising architects. Such success, though adequate talent and training at the outset can hardly fail to have been important factors in it, may be largely due to mere accident favoring the individual, and the frequent result of such success, viz., the establishment of large plan-factories (almost always, by the way, on the basis of our schedule terms and the authority of the Institute being duly quoted therefor), though doubtless very favorable for the personal interest of the practitioners administering them, is apt to be far from the best thing for the spread of good architecture in the community, or for the ultimate interests of the architects they employ as subordinates.

"To produce the best results for the public and for the mass of those aspiring to architectural practice, continued personal oversight and intervention in projecting one's artistic creations from paper into building material are by far the most conducive; and the true architectural practitioner's chief reward should be not in raking in as much money as possible — though that may be unobjectionable in one devoting himself to trade — but in the legitimate opportunity for embodying his creations in stone and timber. This, without immoderate self-sacrifice, can be realized only by his belonging, like a clergyman or lawyer, to a fraternity which, *per se*, commands the appreciation and respect of the community, and, through that appreciation and respect, simultaneously commands adequate no less than legitimate pecuniary returns for its services. And to produce this desiderated environment for the profession, wherein neither the occasion for, nor the temptation to, unworthy administrative methods would prominently present itself, nothing but associative harmony and cooperation will suffice." Yours very truly,

A. J. Bloor.

NOTES AND CLIPPINGS

Overthrowing a High Chimney Stack. — The simple and successful method by which a high chimney was recently overthrown is described by an exchange. The stack was 100 feet high by ten feet square, and was on the Griswold Mills property, New Bedford, Mass. It was undermined by knocking out the bricks on the west and north sides, and shored up by planks placed in the apertures. These planks were liberally covered with tar and kerosene. When the time arrived for felling the chimney they were fired. As they became sufficiently burned to cease to support the chimney, the mass settled out of the perpendicular to the north and then cracked and fell with a crash to the ground. The bricks at the top were scattered over quite an area, while the iron coping was broken in quite a number of pieces. Along the length of the chimney to the height of sixty or seventy feet masses of brick for a length of two feet or more clung together and did not break up. — *Fire and Water.*

TRADE SURVEYS

In thirty-five cities the outlay in buildings of all kinds, so far this year, is estimated at seventy million dollars more than up to this time last year. New York leads off with an increase of eighteen millions; Philadelphia with between four and five million dollars, and so on, clear to the Pacific coast, where in some parts, at least, something like a building boom is in progress. So far as information is available from the smaller cities and towns, the increase over last year is even more noticeable. The best corroborating evidence of the truth of these statements is the demand for lumber, nails, wire, hardware, wagons and farm implements and general merchandise. Enveloping all these is the still more important item of railway earnings. The earnings for June on 137 roads increased over June last year in the ratio from 4.48 per cent to 4.56, and for six months the gross earnings on 138 railroads show an increase of $12,472,598, an increase of over 6 per cent over the gross earnings of about the same mileage for the first half of last year. A few commercial facts might be briefly referred to, to show trade conditions: Since January 1, cotton receipts at Southern ports have been 1,534,701 bales, against 1,253,621 bales. Prices are better and export requirements good. The condition of Southern railroads as regards freight traffic is excellent. Gross and net earnings are slowly increasing. The Government wheat estimate is 490 million bushels; private estimates, 475 millions. Within a short time rumors have been rife of dangerous paralleling schemes between railroads, of which intimations were given in this column several weeks ago. The programme involves a crushing out and absorbing process. On the other hand, there are schemes under consideration looking to the formation of a series of railroad trusts. The railway managers are harassed and beset with annoyances, and do not see their way out. A vigorous effort will be quietly made at next session of Congress to sidetrack the Interstate Commerce Commission, but as determined friends have their tinkering material ready to strengthen it and stop up its leaks. The association is issuing its edicts as fast as brain power can work them out, but the troubles thus far have grown ahead of this high court's rapid work. General trade is good. The surplus reserve is dangerously low. The demand for money throughout the interior is very great. The multiplication of new industries, the extensive building operations, the expansion in the volume of commercial exchanges, all create a demand for money which is not altogether reassuring to those whose recollections extend back over twenty or thirty years of financial and commercial ups and downs. It is the fashion to glorify our monetary and banking system, and those who do not chime in are deficient somewhere, presumably; but our boasted monetary and banking systems need looking after. People are everywhere enlarging operations and taking on fresh responsibilities, trusting to future trade and dividends to meet quarter days. Eastern monetary institutions and private lenders are placing much money in high-interest latitudes, and so far with excellent results. This outflow can safely continue, for it is assisting in the opening up of new territory and the building up of new towns to be supplied with the shop, mill and foundry products of the East. The sea is smooth enough at present. The surplus of production above subsistence is large and all obligations are being promptly met, but an interruption, it must be kept always in mind, is possible.

The present season of activity began in 1881 or 1882, and is now eight or nine years old. The channels of trade are pretty clear of accumulations, but productive capacity has been enormously increased. Fortunately, the bulk of this increased capacity is paid for. The productive energies of the nation are less in debt to the banks than perhaps ever in our history; that is to say, the indebtedness which can be suddenly turned into a sheriff's *fi fa*. Then, besides, the country has been rendered safer against unforeseen disasters through the very mediumship of agencies it is fashionable in many quarters to denounce; viz., trusts and syndicates. The power of these combinations will hold up and steady things. They will prove to be rallying centres. They do not need, and, perhaps, do not deserve, apologies for existence, but certain it is that their rise and expansion is based on certain necessities, in the creation or extinction of which the masses of the people, in their individual or legislative capacity, are powerless to act. Passing by general considerations and descending to particulars, we find the great industries all enjoying fair activity and moderate prices. There is no great stimulus to capital to rush into production. Its most favorite fields are land, mines, lumber and combinations for more economic production. Speculation is concerning itself with what incoming population will appreciate in value. Mining operations from coal to gold are paying, though, in Pennsylvania, the falling off in production this year is almost two million tons, as against the first half of last year. If this decreased demand had been permitted to legitimately react on prices, coal would have been at least fifty cents lower for anthracite, and twenty-five cents for bituminous. The lumber manufacturers repeat their chronic, but untrue, complaint of a dull business. More lumber, taking all regions into account, has been cut and used this year than ever. The new lumber regions of the South have contributed a great increase to Northern supplies. The export trade is improving year by year. The New England textile workers are anticipating some relief from past stringent conditions. Woolen manufacturers see a brighter pathway. Hosiery manufacturers repeat to trade reporters that there is no money in business, but increase capacity and floor-space. The New England industries, as a whole, have not fallen back, but, on the contrary, the additions of the past year prove that capitalists see more opportunities for reward than the much-talked-of South. Southern textile manufacturers, while doing well, are working in a field of restricted proportions, and already the alarm has been sounded, and the advice earnestly given, that preparations be made to produce a finer quality of goods. The same applies to the iron interests of Pennsylvania. Northern capital, pluck and enterprise are proving a match for Southern enterprise, but not without the slowly-coming good sense of railway managers, who at last perceive that it will not pay to let their golden eggs be broken in their greed to get all the traffic will bear. An industrial reorganization is quietly taking place. Establishments are moving to new places. New sources of fuel-supply are being opened up. Cost of production is, on the whole, declining. Capital is finding employment where, a few years ago, it would not venture, and the people are scattering all over the country and quietly laying the foundations of better conditions. Every year strengthens the interests of the people as against corporate and syndicate power, although the people do not know it. These high combinations have a good work to do, and, while doing it, they will naturally tread upon the interests, if not the rights, of the people, beyond whose reach they seek to establish themselves. But the day of reckoning will at last arrive, and what is good in these vast combinations will be preserved and strengthened, but under such intelligent control as will make them the best possible guardians of the public interests.

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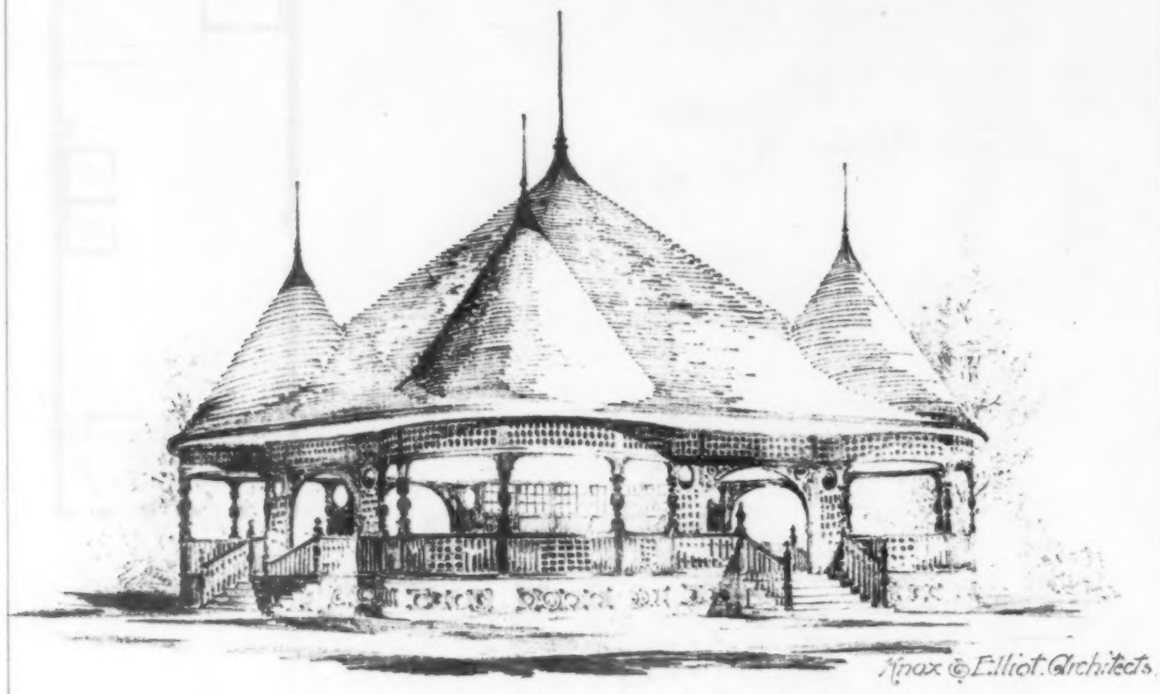

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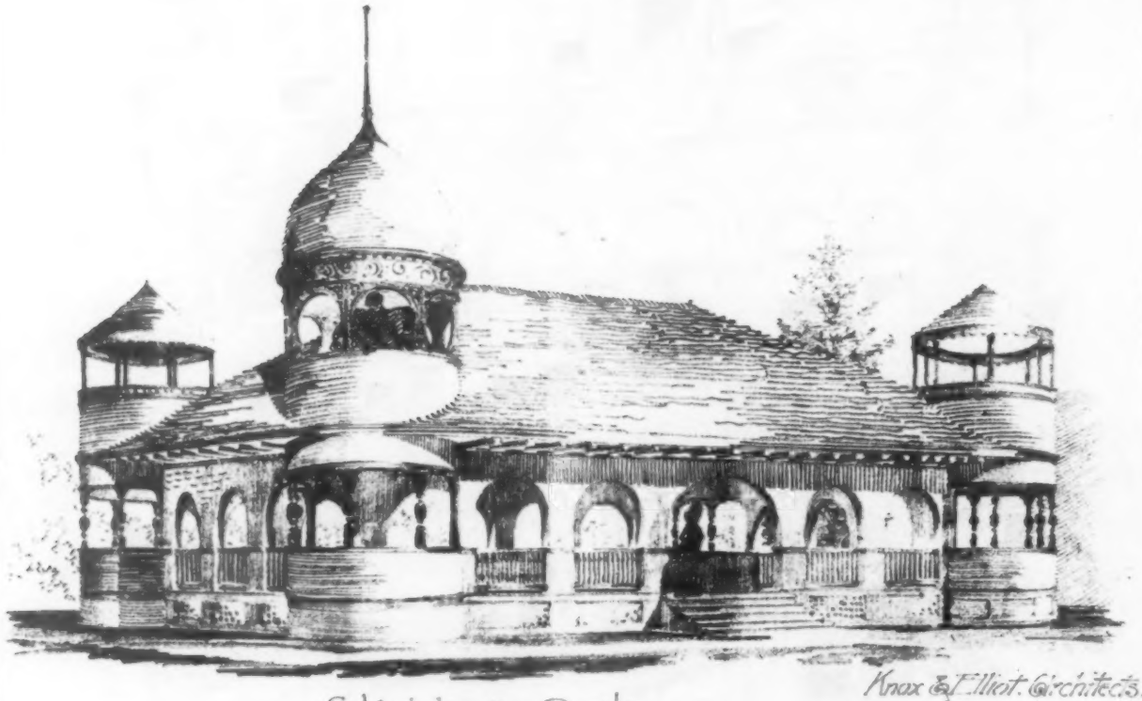
CITY CLERKS' OFFICE.

Proposed Pavilion & Band Stand
Queen's Park.



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Sketch for Pavilion
at High Park.

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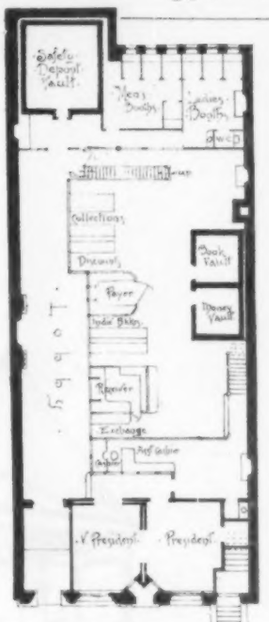

Plan of Banking Room

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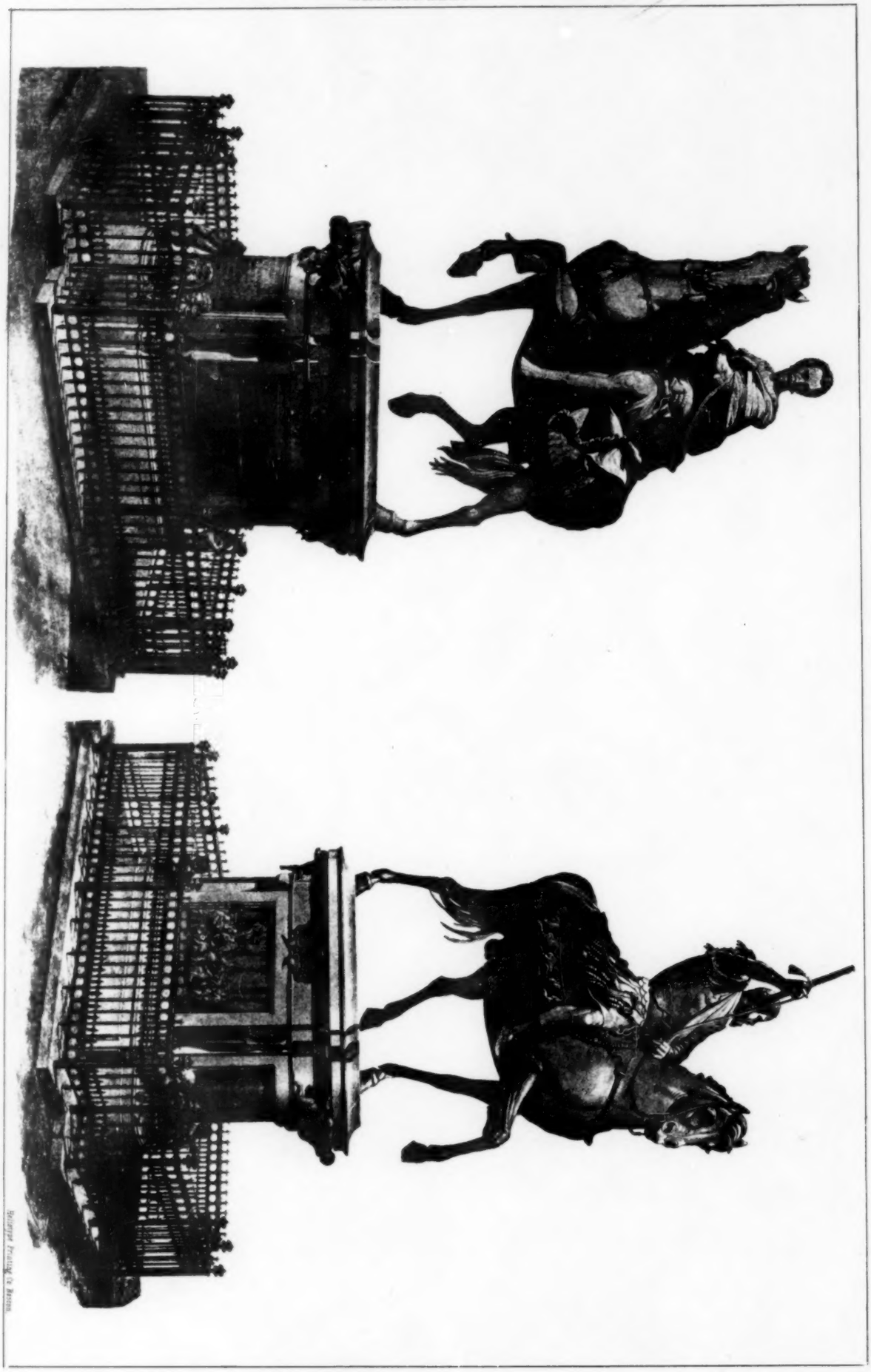

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